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Seamless Learning and Training, Extending the Classroom:

Reflective Practice Case Studies

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Abstract

The purpose of these case analyses is to examine key characteristics and attributes that contribute to adult learning and training via several software videoconferencing-webinar products. The cases were from graduate classes and several businesses which provided the sample data. Sources of evidence for the cases were personal interviews, student “reactive” surveys, online observations (and views), oral histories, online discussions, and recorded video classroom sessions. Our findings suggest that over an 11 week course, students would like a blended learning approach with 3 to 4 sessions in class and 7 to 8 sessions using real-time videoconferencing software (with screen sharing). Sixty percent of the students stated they would enroll in such a course. Convenience, ease of use, and concentrated focus were noted as positive attributes of video conferencing. Business noted that lower costs and meeting customer needs were key factors in using online conferencing. The business community noted that for very specific topical content, webinars were most popular and effective to meet their training needs. Several participants mentioned that technical difficulties (background noise, audio quality) limited the real time, synchronous videoconferencing. Several participants mentioned that webinars are more cost effective than in class training while producing the same or very similar results as attending a seminar in class on the ground.

Keywords: Videoconferencing, webinars, webcasting, adult learning, training

Seamless Learning and Training: Extending the Classroom

The last decade has shown a dramatic increase in online, real time, video (conferencing) sharing, audio, screen software in business and academics. However, sparse research exists on what types of modes of instruction are currently being used (and how they work) and how they are applied in various environments (business and academics). The purpose of this study is to explore the applications of such modes of instruction and training utilizing reflective case studies. “Reflective practice can be an important tool in [practice-based professional learning](#) settings where people learn from their own professional experiences, rather than from [formal learning](#) or [knowledge transfer](#). It may be the most important source of personal [professional development](#) and improvement.” (Wikipedia, 2015, https://en.wikipedia.org/wiki/Reflective_practice). We provide a basic background of relevant literature for our case research. From there we explain our case methods and data collection, and develop emergent categories and themes, and obtain results. Lastly, we cross-referenced our findings with selective theoretical literature constructs from MIS, information technology, and education.

Adult Learning

The father of adult learning is Malcolm Knowles. These cases and classes presented are with adult learners which take into account the concepts of Knowles’ adult learning (1984a; 1984b). A mature person is independent and self-directed. Early in the instructional process the learner and the instructor have mutual responsibility planning and assessing the educational experiences. Usually a planning map of learning activities and assessments are discussed, revised and edited, and then implemented into the total instructional design. Where possible, because adults have more work and life experience, authentic, real life projects and collaborations are desirable.

Certainly academic material is necessary, however, it is more desirable to blend this material and content with practical content based upon adult life and work experiences, and the different roles (parent, worker, spouses, citizen, commuter, etc.) which they play in daily life. Adults also like to apply immediately what they learn and are more problem centered in their inquiry. All this being said, the seamless classroom might provide flexible structures and programs for adults with the proper synchronous video technology applications. The large majority of synchronous video software also allows for recording the class and/or training sessions. So for busy people this type of learning might be very appealing, also some groups not currently reached by more traditional learning structures might be able to participate in courses, training, and degree programs.

Transfer of learning is the extent past experiences affect learning and performance in a new situation (Transfer of Learning, 2015). However, there are various viewpoints as to how this phenomenon occurs and how it is to be explained. For business and industry professionals the training and learning functions can be quite costly, so striving for more effective and efficient means and methods of transfer of learning and training on the job is of paramount concern. Another way to put this is to take the Knowledge, Skills, and Attitudes (KSAs) received from a given training environment to the work or job environment. Transfer of learning focuses on one learning situation to the next, so here training and learning are closely related. Task variation is critical to the process of “transfer.” When the instructor issues a variety of tasks he will enhance or accelerate the learning process as compared to practicing within the same category and/or class. So when face with a new or novel situations on the job there is a greater probability that the learner will transfer the KSAs. The real time synchronous environment provides for a variety tasks and conditions for the learner. They are subjected to audio, video, and tactile stimuli for

example. They can see, hear, and speak via the technology and interact with the content and the instructor in the same dynamic medium and context. So when a simple task is successfully completed, learners can “break out” (which is more difficult), but progressive and fairly rapid. The instructor might use examples and cases which reinforce the original task(s) and then counter examples and cases which maybe contradict the original concept. Lastly, some practice (even drills in some cases) in different contexts, conditions, and scenarios all help reinforce the concept and task and promote transfer of learning and training (Clark, 2015).

Connecting Learners

Various names have been given to such mediums as webcasts, webinars, web meetings, teleconferences, videoconferencing, and virtual conferencing to name a few. Webinars are some combination of software and some components of a “seminar” and could be used for education and training. Usually they are interactive and involve two-way communication which is live rather than recorded, they might involve screen sharing, PowerPoints, chats, white boards, audio instructions and the like. Users can participate through computer desktops, laptops, tablets, smartphones, etc. virtually any e-device as long as they connect to the Internet. Webcasts or Webinars can be recorded, stopped, started, and re-played which is beneficial for some types of learning and training. Products such as Adobe Connect, Zoom, WebEx, Yugma, and Skype allow a presenter to “broadcast-webcast” their lecture simultaneously to many participants. The presenter-instructor need not be on a podium and/or special classroom e-environment to deliver their content lecture. Previous research from Cargenie Mellon revealed some interesting points (Deal, 2007). First webcast recordings help students when they are not able to attend class, and students were less worried and anxious if they did miss a class. In the University of Singapore’s study a paradox was discovered in that students agreed that viewing a

lecture via webcast gave them necessary knowledge acquisition (91%), but they it would be better if they attended in person (77%). The students clearly added the “value added” by attending the lecture in person. Lecture webcasting where classroom presentations, classroom recording, processing and editing, hosting, and distribution/playback reduced course anxiety especially before exams, and increased course satisfaction. Furthermore, lecture webcasting did not impact valued learning outcomes such as grades, retention, and conceptual understanding (Deal, 2007).

The University of Texas at Austin reported that exam scores did not differ significantly between webcast and non-webcast sections. In a Georgia Tech HCI study the final course grades of an experimental group (which viewed webcasts before coming to class) were on average eight percentage points higher than a control group. The average webcast recorded duration was 70 minutes, and the average webcast access was 43 minutes. The instructors were surveyed in one of the studies reviewed. Only four of 15 instructors surveyed reported positive feedback for lecture webcasting. Fourteen out of fifteen reported that the use of lecture webcasting did not help them learn about their students’ level of knowledge or understanding (Deal, 2007).

Yunus et al. (2006) used a pre-test post-test design with random assignment to each of four groups: pre-recorded technology, live streaming technology, video on demand technology while a face to face group acted as the control group. Video on demand group showed the highest gains when compared to the face to face group. The other two groups were also statistically significant ($p < .05$) when compared to the face to face group (difference between modes of instruction on the mean difference in the pretest-test scores and post test scores on the set of tests given during the lectures). Yunus et al. (2006) also found that video on demand had several benefits: full functionality for each user, maximum access to content, improved security, and low cost content

distribution. Their conclusion was that video on demand might be used as an alternative to face to face lectures. Web meetings are two-way .meetings that are held on the web and use a variety of software tools such as a white board, chats, sharing documents/graphics/pictures, note captures, etc. They are popular due to the cost effectiveness of no travel if the participants are very distant from each other. Teleconferencing is the “low tech” solution usually incorporating speaker telephones and audio only. Documents and notes are relayed via email to participants. Videoconferencing allows usually small groups (say five or less) of persons to view and talk to each other via the Web. They offer a warmer personalized approach to “conferencing” where eye contact and some non-verbal communication (facial expressions) are important to the users. Virtual conferencing is yet another solution where participants are given an avatar and work through the conference/presentation in this manner. User get most of the features previously mentioned (chat, notes, voice, video, recordings, etc.). For example Protosphere (2015) offers a 3-D environment for learning and collaboration and has integrated software tools including Skype for Business TM and SharePoint TM.

Procedure

As previously noted, reflective practice may contribute to professional development. Reflective practice allows the researcher to really think about what they are doing or have done. They may discuss their implementations, gather user feedback from various sources, and interpret the findings. One of the key ingredients of reflective practice for evaluation is: “can we make it better?”

We used a multiple case study design with an overarching question: “How and why are academics and business using new communication technologies in their practice?” Each business selected for the case study was done purposively. Units of analysis are the business

organization (top ranking official interview) or the learning organization and another unit of analysis is the individual participating in the training/learning context. So in some respects we have an embedded case study design. In an effort to collect case study data we used several sources of data: participant observation; direct observation; interviews; and archival records. With the instructor participating in the learning process, they are able to perceive reality from the viewpoint of someone inside the case study instead of external to it. By doing this we are able to give a more accurate portrayal of the synchronous learning, and video experience. Also, we have the ability to manipulate minor events, such as group meeting times, duration, and frequency (Yin, 2003). Direct observations of the student/participants in real time, synchronously with the ability to record the entire online session (stop-start-playback) provided valuable sources of evidence. This documentation was reviewed repeatedly over the span of the course and/or training. Interviews were conducted with top ranking officials in the companies selected, and in the learning institution the interviews were conducted by the instructors. In the learning institution students were asked three questions: (1) What were the Best things about the Virtual Video Live Classroom; (2) What were the Worst things about the Virtual Video Live Classroom; and (3) What product would you recommend to management?

Simulation

Our approach with graduate courses using real time online software was to “simulate” what we already do in a traditional on-site, in class on the ground, face to face course. Many of the courses involve some lecture, class discussions, small group work, case study analyses, and presentations by students, peer reviews, quizzes, tests, and exams. Our goal is to create an online, real time environment which provides for all of these (and more) using video conferencing software. A general lesson plan script was created for each class. These would

include goals for the class, learning activities for each goal (software interventions and time estimate for each), end of session wrap-up, assignment(s) due check, note problems encountered, and plans for the next session . This is just a plan and not adhered to 100%, but emergent topics/ideas/issues come to the forefront during the course of these sessions providing a richer learning experience for the student.

Graduate student course/class experiences with video conferencing, screen sharing varied as to the duration and frequency of exposure by course and instructor. However, the students as learners had almost no prior training and/or experience in these modes of instruction and received only online help as provided by the software companies. In the online screen sharing sessions instructors would “show and tell” the students the video conferencing software product and how it was to be used in the course. In addition, one of the graduate courses (case) had only one online session with no training, so first impressions are so noted (see Appendix B for raw data responses). The second course (case) group had seven virtual, video, live classroom (VVLC) sessions over the term. They had more exposure, were IT majors, and many were employed professionally in the IT fields.

Case Study Analyses

Using inductive methods of data collection and emergent design the case narratives are provided. Also, examination of student responses revealed patterns in the data, similarities in responses, and emergent categories reducing themselves into several broader themes.

The following three case studies are detailed observations (narratives) from direct observation, participant observation, and personal interviews. A seamless learning experience leads to better results in the professional realm, as well. The lessons learned in higher education

can also provide a model by which businesses train industry professionals. The three case studies used demonstrate the importance of “seamlessness” for in-house professional development and for the creation of value-added services for clients.

Case Study 1 focused upon a national logistics service provider. This Japanese-owned corporation has a significant presence in the United States and is a full-service international freight forwarder, customs broker and supply chain manager. Their client base consists of importers and exporters located throughout the world. They provide services to firms of all sizes, which import and export vastly different commodities.

This firm uses webinars for in-house training of personnel. Six of their most highly-qualified compliance managers meet in January of each year to determine a curriculum for the upcoming year based upon known adaptations in international trade regulations and/or changes to procedures. Employees in different areas of specialization may be required to participate in and complete this type of webinar as a term of their employment. As a result of this in-house curriculum, very few employees attend out-of-house seminars for professional development. Information included in seminars is generally less urgent in nature as the seminars are planned several months in advance of being held. The subject stated that virtually all this firm’s professional development is accomplished through webinars.

In addition, the company regularly creates additional webinars as current events in the trading community necessitate the rapid dissemination of information. These webinars are sometimes shared with key clients if they are deemed appropriate in content and scope. They provide these webinars to their clients for free as a way of distinguishing themselves from their competitors. This additional service not only keeps their clients apprised of changing rules and regulations regarding international trade, but it also helps to create an additional buy-in as their

clients have come to rely upon them. While clients frequently have access to updates through rss feeds and other online updates, they can benefit from an expert's interpretation of the impact.

Case Study 2 focused upon an international transportation insurance provider with 10 offices in the United States and 200 employees. Established in the US in 1935, they became a subsidiary of a German firm in 2008, and they have a close affiliation with a leading British insurance agency. They are the primary US provider of marine insurance and customs bonds. Their client base is divided into two specific categories: individual firms and third-party providers.

While this firm does also use webinars for employee training, they are far more involved in creating webinars for client use. They still use seminars roughly 10% of the time as a means of further developing their clients' reliance upon them as purveyors of relevant information.

They cited several factors for choosing to develop webinars the other 90% of the time:

- Reach: webinars reach clients throughout the country
- Cost: webinars are less costly as there is no travel, food and drink budget
- Time: customers are increasingly less able to leave their offices for full or half days to attend seminars as workloads are greater than they had been in the past
- Increased attendance: more clients sign up for webinars than they do for seminars (actual attendance is addressed below)

They also cited several factors making webinars less attractive than seminars:

- Lack of interaction: attendees in webinars are less apt to ask questions, and the presenter has less ability to read the audience response
- Attendance: registrants feel that it is easier to miss a scheduled webinar than it is a scheduled seminar, especially if the webinar is free.

- Time: where the shorter time can be a benefit, it can also be a constraint as the presenters are limited to a specific timeframe in presenting information.

Case Study 3 focused upon a US software company which provides document storage and workflow systems. This firm employs approximately 85 employees and was established in 1991. The particular area of focus for this particular study was the international logistics software systems. The clients in this area are third party logistics providers rather than the importers and exporters. This software provider creates webinars as a sales and marketing tool for their customers and business partners. This subject noted that webinars work best when the topics are specifically limited for the intended audience and are less effective when the topics are more broad or varied in scope. They have attempted to create webinars encouraging live interaction with the audience but have found this has led to confusion and dilutes the quality of the presentation. They have also found that clearly defining the objectives with bulleted agenda points at the beginning of the webinar leads to increased attendee satisfaction. Providing attendees an opportunity to ask questions for a specific period at the end of the webinar has also resulted in increased satisfaction. This firm sends surveys following the sessions asking attendees to provide feedback as a way of continuing to improve upon their results.

Graduate Course Analyses

Glasser's (1965) constant comparative method was originally developed for the use in grounded theory methodology. Over the last several decades, it is now applied more widely as a method of analysis in qualitative research. It requires the researcher to take one piece of data (e.g. one interview, one statement or one theme) and compare it to all other pieces of data that are either

similar or different. During this process, the researcher begins to look at what makes this piece of data different and/or similar to other pieces of data. Inductively, the researcher begins to examine data critically and draw new meaning from the data (rather than a deductive approach which defines at the outset what will be found). At the end of the analysis broader themes emerge from the data and categories.

The following categories and emergent themes were found in the data:

Table 1

Emerging Categories and Themes

Categories	Theme
Chat, comfort, easy to use, convenient, user friendly, focus, cozy	Positives
Poor weather, winter, sick, traffic, rush hour, driving	Usefulness/Practical
Noise, clarity, lag, audio, social skills	Problems/Challenges
Webinars, reach, cost, time, attendance, focus, in house, clients	Training

The software for the most part was easy to use and convenient. Not having to travel when sick, in poor weather, and/or the rush hour were positive attributes of the real time synchronous learning environment. Being able to reach out to clients and customers in various geographic locations increased attendance in the training webinars while reducing costs and saved time/travel. Downsides were audio noise at times, poor connections, lag in the videos, and screen clarity. However, these were not very frequent but still noted. Lastly, some persons

remarked that social skill sets are not developed using these modes (perhaps new social skills are emerging)? In one of the graduate courses which was heavily topic/PowerPoint driven, using screen-sharing features of video conferencing software allowed for a visible chat window simultaneously within the real time session. Even audio was available for every participant (click off to mute), however, they did not chose to use audio, they chose the chat. As the session progressed, Q&As emerged with the topic at hand, with no pre-determined script or plan. The instructor could view and comment to the entire group if they so desired or simply monitor the chat, and add audio comments as needed. *We found this invaluable for group discussions with related topics and issues important to them.*

Discussion

Christensen's Disruptive Innovations

One might argue that the “distance education” movement is a disruptive innovation, in that initially, this service was just a simple application of computer technology, not really threatening the major college and universities residential communities. However, now nearly thirty years later, will “distance education technologies” replace the traditional face to face in class teaching at the college and university level? And, for business is this type of training more cost effective without losing quality while delivering the same or equal results? Has this “innovation” allowed persons to access higher education that otherwise could not by traditional means? Christensen (2015) remarks that some companies tend to innovate faster than their customers/clients’ needs evolve, producing products or services too complicated, too sophisticated, or too expensive for many customers in the market. One might consider webinars and/or videoconferencing given his remark? Sustaining innovations would be the traditional residential college student pursuing a

four year bachelor's degree. Institutions charge a relatively large tuition to demanding and sophisticated customers at the top institutions, while achieving the greatest profitability. Deagon (2003) in an interview with Michael Raynor states that when companies see innovation coming, but they opt to ignore it. If you only serve your best customers through sustaining innovations you are doomed to fail. Companies must have the ability to repeated launch disruptive innovations whereas disruptive growth might emerge which might be somewhat predictable and repeatable. However, there is an alternative, an emergent strategy where companies retain flexibility by getting feedback from the market as to what works and what does not. Emergent strategies work in highly uncertain situations. Nowadays managers tend to encounter unanticipated problems and results that the very traditional business planners didn't anticipate. Using a traditional approach in such uncertain times can lead to business failure...sticking with a strategy which isn't working, failing to adapt to reality. With emergent strategies, managers respond to the problems in the most effective and efficient method possible which might take them from their original plan. For such emergent strategies to work, rapid learning and adjustment is needed. As you respond to problems and reflect on your original strategy (reflective practice) some of your assumptions will become less important, while new assumptions which lead to new questions will emerge that need to be tested. You increase your chances of success by re-shaping a flawed strategy with rapid adjustments, and new learning (The Imperative of Disruptive Innovation, 2011).

TAM

The Technology Acceptance Model 3 (TAM3), is offered as an historical framework using a 'zig – zag' and cross-referencing approach (see Appendix A). When new technology comes on the scene, instructors, trainers, administration, and management need to make important decisions as

to the feasibility of such a software application in their particular environment. Moreover, through training and instruction (and associated costs) will users' accept this new technology and apply it for personal and professional use both effectively and efficiently? Davis (1986; 1989) developed the Technology Acceptance Model to predict individual adoption and use of new information technologies. The basic idea is that an individuals' behavioral intention to use the IT is determined by two of their beliefs: perceived usefulness, and perceived ease of use. Perceived usefulness refers to the extent this IT will enhance their job performance or the learning performance. Perceived ease of use is the degree of effort to which a person believes that using the IT will allow them to accomplish a given task. Over the decades the TAM only explains about 40% of the variance in individuals' intent to use an IT and the actual usage (Venkatesh, 2008). Venkatesh and Davis (2000) extended the TAM to the TAM2 identifying and theorizing about more general determinants of use and usefulness, while introducing two moderating variables experience and voluntariness. The TAM3 (Figure 1 below) presents a complete model of an individuals' IT adoption and use. In our research and data analysis 55% of the TAM3's constructs were observed. We did not measure experience per se, however two cases (two classes) had no prior experience at all. Important in this extension is that experience moderates perceived ease of use and usefulness, computer anxiety and perceived ease of use, and perceived ease of use and behavioral intention to use the IT. Venkatesh and Bala (2008) urge IS researchers to examine the influence of design characteristics on user acceptance particularly on the determinants of perceived usefulness and perceived ease of use. In their research conducted with four groups, they delivered formal training on the new IT system, administered questionnaires, and also measured self-reported usage. They suggest that user participation is very important in the system implementation process: assignments, behaviors, communications,

and activities. All of which leads to greater user involvement, system acceptance, and overall success. Also, “hands-on” activities are very beneficial and user involvement producing a better understanding of the new IT features. All organizations need to develop effective interventions to enhance IT adoption and use, while linking what we already know about specific determinants of IT adoption.

TAM 3

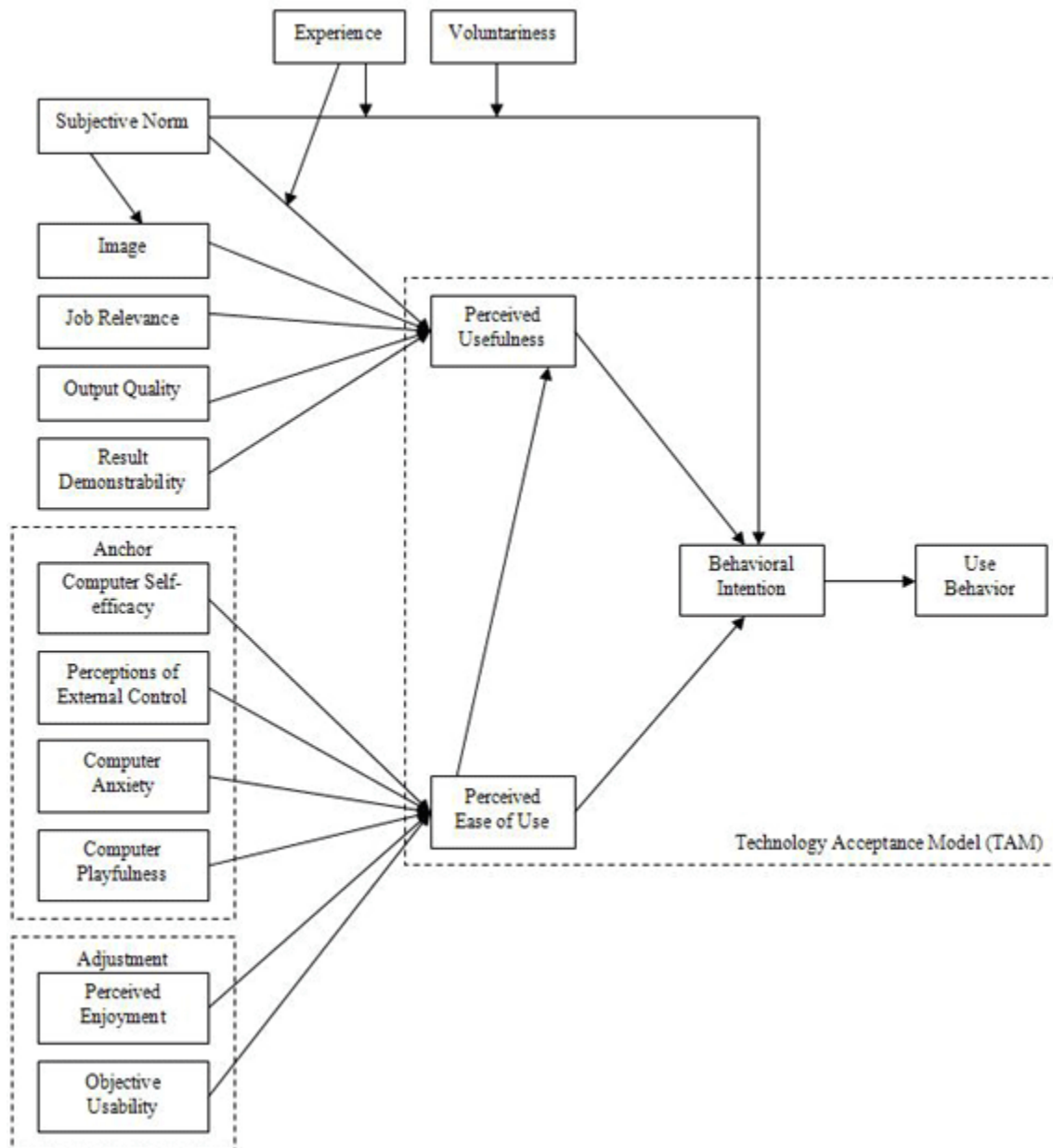


Figure 1: Venkatesh, V. & Bala, H. (2008, May). Technology Acceptance Model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 280.

Task Technology Fit

The Task-Technology-Fit (TFF) theory posits that information technology is more likely to have a positive impact on individual performance (and be used) if the capabilities of the IT match the tasks that the user must perform (Goodhue & Thompson, 1995). The theory is comprised of eight factors: locatability, quality, authorization, and compatibility, ease of use/training, production timeliness, systems reliability, and relationship with users. Their original instrument was on a seven point Likert scale ranging from strongly agree to strongly disagree. Their research (when utilized within a system environment) was found to be a significant predictor of user reports of improved job performance and effectiveness. Zigurs and Buckland (1998) extended the original TFF to the group level. They theorize that an appropriate task/technology fit should result in higher performing groups whereas group performance is the dependent variable. They define the group task as the “behavior requirements for accomplishing stated goals, via some process, using given information,” p.316. The task technology fit is defined as “ideal profiles composed of an internally consistent set of task contingencies and GSS elements that affect group performance,” p. 323. The degree of fit could be tested on the performance effects of the task-technology alignments. Our research with the business cases supports the TTF with the use of Webinars localability, ease of use/training, timeliness and relationship with users.

Conclusions

“**Emergent Design** is a [phrase](#) coined by [David Cavallo](#) to describe a theoretical [framework](#) for the implementation of systemic change in education and learning environments. Emergent Design holds that education systems cannot adapt effectively to technology change unless the education is rooted in the existing skills and needs of the local culture (Emergent Design, 2015).”

Cavallo (2004) states that change itself is a process of learning and it should be studied and his emergent design is a useful tool for studying educational change. What might be appropriate in one “culture” might not work at all in another, so the “one size fits all” may not be relevant, you must know your students, clients, and customers... their need and wants.

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Appendix A: TAM3-Construct Definitions

Observed constructs in the data highlighted in red.

Attitude: Individual's positive or negative feeling about performing the target behavior (e.g., using a system).

Behavioral intention: The degree to which a person has formulated conscious plans to perform or not perform some specified future behavior.

Computer anxiety: The degree of an individual's apprehension, or even fear, when she/he is faced with the possibility of using computers.

Computer playfulness: The degree of cognitive spontaneity in microcomputer interactions.

Computer self-efficacy: The degree to which an individual believes that he or she has the ability to perform specific task/job using computer.

Effort expectancy: The degree of ease associated with the use of the system.

Facilitating conditions: The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.

Image: The degree to which use of an innovation is perceived to enhance one's status in one's social system.

Job relevance: Individual's perception regarding the degree to which the target system is relevant to his or her job.

Objective usability: A comparison of systems based on the actual level (rather than perceptions) of effort required to complete specific tasks.

Output quality: The degree to which an individual believes that the system performs his or her job tasks well.

Performance expectancy: The degree to which an individual believes that using the system will help him or her to attain gains in job performance.

Perceived ease of use: See the definition of effort expectancy.

Perceived enjoyment: The extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use.

Perceived usefulness: See the definition of performance expectancy.

Perception of external control: See the definition of facilitating conditions.

Result demonstrability: Tangibility of the results of using the innovation.

Social influence: The degree to which an individual perceives that important others believe he or she should use the new system.

Subjective norm: Person's perception that most people who are important to him think he should or should not perform the behavior in question.

Voluntariness: The extent to which potential adopters perceive the adoption decision to be non-mandatory.

Notes. Venkatesh, V. & Bala, H. (2008, May). Technology Acceptance Model

3 and a research agenda on interventions. *Decision Sciences*, 39(2), 280.

Appendix B: Graduate Student Raw Data Interview Responses

Questions:

What did you like the most about Product 1 software?

What did you dislike the most about Product 1 software?

Q&As

What did you like the most about Product 1 software? I think the Product 1 software was easy to use. I did not need to download any program, but just clicked the link from the professor and entered my name to join the class. Also, I could see the PowerPoint slides and chatting at the same time. Overall, the software was not hard to use even though I was the first time user.

What did you dislike the most about Product 1 software? The video was not clear, but I still could see the video (maybe this was my monitor's problem). Also, the voice was little delayed. If there is a function which let a host mute other person's microphone during a lecture, this could be useful because we still can see the chatting during the lecture.

What did you like the most about Product 1 software? That is was interactive, it was llike being in the class room.

What did you dislike the most about Product 1 software? There was a lag in when I recieved the information being presented. I did not like that when other people use their mics it was hard to hear the professor talking.

What did you like the most about Product 1 software? It was easy to download, clear picture, sound was and picture were able to turn off on either end. Also, lots of people could join in to one conversation verbally and typing.

What did you dislike the most about Product 1 software? The picture would only show largely who was speaking. I wish that I could have seen everyone at once

What did you like the most about Product 1 software? I like how it is so convenient. It is easy to download and use. Also I like how you can mute yourself therefore we had clear connection with professor. I heard everything that he said during the conversation. On the other hand, it is very cool that you can type a message at the same time. It is way much easy to use then Skype.

What did you dislike the most about Product 1 software? One thing I don't like is when multiple people tried to open their webcams I could not able to see all of them. I just saw 2 different person in one screen in whole conversation.

What did you like the most about Product 1 software? I thought it was nice getting the chance to go to class by watching it on a laptop and or tablet.

What did you dislike the most about Product 1 software? There really wasn't anything I disliked from the software. I thought it was really neat. I have never done it before.

What did you like the most about Product 1 software? clear audio and video within the group is the most I like about the Product 1 Software.

What did you dislike the most about Product 1 software? overall, it was very good for the online communication and presentation. I did not experience any difficulties during the online class.

What did you like the most about Product 1 software? It is a user - friendly software. And we do not need to go to school to have class in those cold weather. You can listen and see from other. I think it is a good way to have online class.

What did you dislike the most about Product 1 software? The back noise is disrupted. If one student did not mute the mics, we cannot hear the professor said. If everybody turn on their mics, the situation would be mess.

What did you like the most about Product 1 software? It's a face to face meeting and allow all of us discuss problems during the whole process by using the chatting room. Everyone liked Product 1 Software as I known.

What did you dislike the most about Product 1 software? Sometimes we have different internet conditions. So the technology problem will influence us sometimes.

What did you like the most about Product 1 software? I think the face-to-face meeting with chatting room is my favorite point of Product 1 software.

What did you dislike the most about Product 1 software? The technology problem will be the shortage of Product 1 software.

What did you like the most about Product 1 software? In my point, I believe the Product 1 software is very convenient to meeting. It is not only has the strong function but also easy to use. More important, the software is personalized allow people can set up detail to satisfy there habit.

What did you dislike the most about Product 1 software? They don't have the other language editon to satisfy demand of the non-english people.

What did you like the most about Product 1 software? It is really convenient to use and it is so clear (include both the image and the voice).

What did you dislike the most about Product 1 software? Actually I am really satisfied with this software.

What did you like the most about Product 1 software? its convinient and useful

What did you dislike the most about Product 1 software? cannot avoid the incident problems like the noise problem , or technical problem

What did you like the most about Product 1 software? I liked that we could call from the comfort of our homes and could mute users so they didn't distract us. I also liked that the professor shared his screen/PowerPoint. I focus better when the material is right in front of me.

What did you dislike the most about Product 1 software? I don't think anything could be done on the software end but it took 45 mins for audio to kick in on my laptop

What did you like the most about Product 1 software? The audio was very clear and it was user friendly. I Had no trouble using it.

What did you dislike the most about Product 1 software? I don't think I have any dislikes with this software as there was no any disturbances throughout the class as it happened last time when I had online class of research through WebEx and

What did you like the most about Product 1 software? I didn't like Product 1 at all. It wouldn't load properly, had a very pixelated presentation, and the audio was in and out.

What did you dislike the most about Product 1 software? Product 1 software seemed buggy and didn't work smoothly on my computer, it was extremely unclear and slow.

What did you like the most about Product 1 software? I loved that the entire class could connect from home. I had everything accessible to me that I would have had in class.

What did you dislike the most about Product 1 software? There were a few echos and the entire class had to be muted for a majority of the class due to this.

What did you like the most about Product 1 software? I liked that Bluejeans is easy to use. The instructions are easy to understand and the meeting is easy to navigate. I was able to use this software with ease from both my PC and my iPad. I should also point out that this was the first video chat/class/meeting I have used, so I don't have anything to compare it to.

What did you dislike the most about Product 1 software? When I was in the meeting, I had to navigate around to find out what the features were. It would perhaps be helpful if that had a "help" button within the meeting that brought you to a quick "key" to demonstrate what the features were and/or how they could be used. Also, during the meeting there was audio disturbance from another user and it would be helpful if the administrator could "mute" all noise while talking/lecturing.

What did you like the most about Product 1 software? I could see the slides clearly, unlike the classroom. Plus being alone and comfortable allowed me to focus better

What did you dislike the most about Product 1 software? that they installed an unnecessary plugin on my computer.

What did you like the most about Product 1 software? I liked how easy it was to use and to join a meeting. I also enjoyed going to class from the comfort of my home and still be able to see all the videos and powerpoints that were presented.

What did you dislike the most about Product 1 software? The only thing I disliked was that when I turned my video on, I could not see myself. I also was unable to see everyone else when my video camera was on. Other than that the software was pretty good.

What did you like the most about Product 1 software? I liked the option to use two way audio and video. It gave the entire class the opportunity to actively participate if they so desired. It actually made it seem as though you were in the classroom./

What did you dislike the most about Product 1 software? The feed did tend to get choppy if all used audio or video. Also, there should be a way for the administrator to mute all mics. If one student leaves their mic on and there is background noise, the entire class has to hear this noise which is very disruptive.

What did you like the most about Product 1 software? Well, it is very comfortable to study or work at home because of Product 1. For some reasons, such as poor weather, or far distance, Product 1 is helpful.

What did you dislike the most about Product 1 software? It is difficult to focus on the conference or class since the surrounding is not class or office, too cozy at home to study. I will never choose Product 1 for study at home, the effect is not so good, I can't ask the question immediately when I have and is not so easy to communicate with professor.

What did you like the most about Product 1 software? Yeah. if I have to compare it with other software we've worked on previously, I would definitely rate it excellent in the audio and video clarity. All the functionalities were perfectly working on....I think the chat box could have been much more easier to type-in.

What did you dislike the most about Product 1 software? As I said the chatbox could've been more feasible to use, but that's not the disliked thing, it is just a modification which can boost up

Question Answer

What did you like most about Product 1? The fact that we can have audio, video and chat all together and also we can share screens.

What did you dislike most about Product 1? its dark color.

What did you like most about Product 1? Product 1 is a service in communication. It can help people to meeting in the same time when people are in different places. It is a advanced technology. I think it has a lot of room to grow.

What did you dislike most about Product 1? I do not have any problem at present.

What did you like most about Product 1? Product 1 was great because some student received the class through this program. Students stayed in other place and with Blue Jean program they received the class, power point, pdf, and other information. I was in class but at the same time I used my computer. My perception is that Blue Jean program is a good alternative for meeting or clases.

What did you dislike most about Product 1? Blue Jean was good, but when the profesor shared documents was slow.

What did you like most about Product 1? it can hear and see our classmates in their apt.

What did you dislike most about Product 1? professor wont respond to chat window that quick.

What did you like most about Product 1? I feel nice when I access this software because it was easy to access, comfortable and cool software. In this we can hear and see our professor very clearly and others friends as well. Notwithstanding, two way communication both audio visual behaviour was possible in a systematic manner.

What did you dislike most about Product 1? Eventhough it is very nice software and very appropriate for video conference regarding the students, it is not in use so widely. And that is the bad part of I felt..

What did you like most about Product 1? It's effective.and the quality of video is good.

What did you dislike most about Product 1? To use it, I have to download it.

What did you like most about Product 1? What I liked most about Product 1 was the ability to be in class still interacting with your fellow students and the professor from the comfort of your own home. You had audio, video, and the ability to write in a group chat with the entire class. It was a very relaxed yet still a serious setting and I enjoyed switching up the scenery rather than just sitting in the classroom. I also really enjoyed the split screen effect. You were able to view powerpoints and documents while still having the capability to see the video feed.

What did you dislike most about Product 1? Really enjoyed this software the only thing that I would say could have been better was the ability to multitask. You were able to do split screens and see different documents but one time where we tried to pull up more than two things it got disconnected and it wasn't working very well. Also I wish that you were able to see more than four of your peers at a time. At the end of class when we tried showing everyone's video screen I could only see a few of my classmates and the others wouldn't show up.

What did you like most about Product 1? I liked that the setting of the software allows you to participate and interact with the professor in live time.

What did you dislike most about Product 1? The audio wasn't clear. There was a lot of echoes.

What did you like most about Product 1? <Unanswered>

What did you dislike most about Product 1? <Unanswered>

What did you like most about Product 1? It can show the ppt and the lecture at the same time.

What did you dislike most about Product 1? Lag during lectures affected the quality of class.

What did you like most about Product 1? I like the Product 1, because it can be used anywhere. In this couple of days, class was cancelled by snowstorm. so this system is very useful with any of the weather problems =.

What did you dislike most about Product 1? sometimes i cannot hear very clearly and aroundsound, May be is the audio system.

What did you like most about Product 1?

What did you like most about Product 1? many people can join the meeting together, and share their screen as well.

What did you dislike most about Product 1? a little lag when we shared the screen

What did you like most about Product 1? I could have my class online , If I need to do it .

What did you dislike most about Product 1? low quality picture, system lag but the instructor does not know.

What did you like most about Product 1? The thing that I liked most about the Product 1 experiment was how easy it was to get connected to the class meeting. I also like how if you We're sick and couldn't make it to class that you would still be able to take in the entire class lecture without missing anything from the class.

What did you dislike most about Product 1? The thing that I dissliked most about the Product 1 experiment was how much slower you would see and hear what was going on then when it was actually taking place. Another thing that I didn't like was how it would freeze and the professor would have to close the meeting and open it back up was annoying in my opinion.

What did you like most about Product 1? I like it very much. It provides us with more options to participate to the class.</p> <p>Online discussing on the chatting board during the class is much more funny than only listen to professor and few students discuss in class.</p> <p>It also a good way to see everyone in class with video carmra.

What did you dislike most about Product 1? Technical problems happened during the class. </p> <p>Others are fun.

Appendix C

Class Two: “What are the Bests, What are the Worst?” Would you recommend to the administration?

Note: VVLC – Virtual Video Live Classroom**Questions Answers**

What are the BEST things concerning the VVLC? The best things concerning VVLC is accessibility. As it can be used from anywhere and you save a lot of time.

What are the WORST things concerning the VVLC? VVLC is a better approach for the class and allows to learn the subject matter same as the class. As we had class on both Product 1 and Product 2; for me Product 2 was a better software.

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? I liked the class that was structured for us; as we had 3 classes and remaining 7 were the online classes. However sometimes we had problem with the video and presentations. Overall the classes were good.

What are the BEST things concerning the VVLC? Sharing resources is a good feature of VVLC. Because people can type in online resources on real time, and students can access the link immediately, which is something a traditional classroom doesn't have. Multimedia gives a better learning experience.

What are the WORST things concerning the VVLC? This can be a hardware concern, because people are using different devices and networks. Those aspects will possibly affect the quality of the video experience.

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? I recommend Product 2 as the product that should be using in class. Its Blackboard function makes class presentation easier. It also has the screen share function, which means you can share pictures, videos and desktop with people. By using it through the term, Product 2 works on my devices are slightly faster than BlueJeans. The quality is pretty good of its kind. In terms of usage for the class, I think it depends on the class subjects that professors want to deliver. If necessary, the whole term can be online. If the class has a lot of multimedia materials, online class is preferable.

What are the BEST things concerning the VVLC? The quality of the videocall and audio was great. It was also easy to use. It was also very close to being in a traditional classroom without having to physically being there.

What are the WORST things concerning the VVLC? Sometimes when a video was played the audio was not that great and it buffered frequently.

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? Yes definitely, it was a great learning experience. The interface was amazing and all the options including the live chat allowed us to ask questions when we had any doubts.

What are the BEST things concerning the VVLC? - Remote access so could easily get connect from anywhere.</p><p>- No need to come to class physically and dont have to deal with the crazy evening traffic.</p><p>- Learning resources are posted online, so could refer back when and where needed.

What are the WORST things concerning the VVLC? Connection issues: If your internet or a computer gives you an issues then you are not able to attend the class.

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? once a month in class and rest online would be good.

What are the BEST things concerning the VVLC? The best things concerning the VVLC is that all students and professor do not need to come at school. The VVLC would be very helpful in winter at snow time!!! We have used two softwares Product 2 and BlueJeans. Both softwares are good and both have littel bit different from each others.

What are the WORST things concerning the VVLC? The worst thing is that we can not meet face to face to our classmates and professor too. So, we can't build personal relationship with anyone.

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? 3 to 4 online class

What are the BEST things concerning the VVLC? Using my own equipment, while hearing and seeing clearly at all times.

What are the WORST things concerning the VVLC? n/a

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? I think every non-examination day would be optimal for this type of classroom.

What are the BEST things concerning the VVLC? Generally, VVLC shows how advance the IT in world has become. It is more convenient, and easy to follow the directions. People across the world can do live conference and meetings by just a click. Precisiely, the best things of VVLC is its Visual feature.

What are the WORST things concerning the VVLC? The worst thing concerning the VVLC is aduio part because sometimes the volume get ceased in the middle of the visual session.

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? I guess 4 classes in whole trimester and rest of the classes could be online.

What are the BEST things concerning the VVLC? It is virtually possible to meet up people.

What are the WORST things concerning the VVLC? It is not possible in VLCC to form groups and some group activities are to be done.

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? In a 11 week course of JWU term :

It is imperative that students need to learn to work being virtual as well, so I would suggest

Online- 5

In Class - 6

What are the BEST things concerning the VVLC? Saving time related to driving to school. As a working professional, it was nice to be able to avoid rush hour traffic in Providence and have class in the comfort of my home.

What are the WORST things concerning the VVLC? I learn best in-class. I look at a computer screen roughly 8 hours a day while at work, so I enjoy taking a break from technology and learning in-person. I feel the continuing trend of moving towards technology (texting, etc.) to communicate is also eliminating important social skills.

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? It depends on the student body. If students are taking an online class because they can not physically make it to the university, then it has to be an online class only. If students have elected class because they prefer in class learning, I would keep VVLC to a minimal, may 2 to 3 sessions online total. If the class has no preference, I would recommend splitting it. I preferred Product 2 over Bluejeans. To me, it seemed to work a bit better, less glitches. It was also a bit more user-friendly, though not a significant difference. The best software that I have used in my career was AT&T teleconference. I am now using Citrix WebEx and have experienced some technical issues with it, such as issues calling in and connecting, meetings not appearing on calendars as they should, etc. My guess is Product 2 is a more affordable option than AT&T however. So, for the money, probably the best option.

What are the BEST things concerning the VVLC? comfortable to study from home.

What are the WORST things concerning the VVLC? sometimes there were an issues in listenin audios but over all its good

What would you recommend as a delivery system using VVLC (number of weeks, in class, online, product, etc.) to a university administration? yes, definately. I love it &3